THE SAFETY CLAUSE

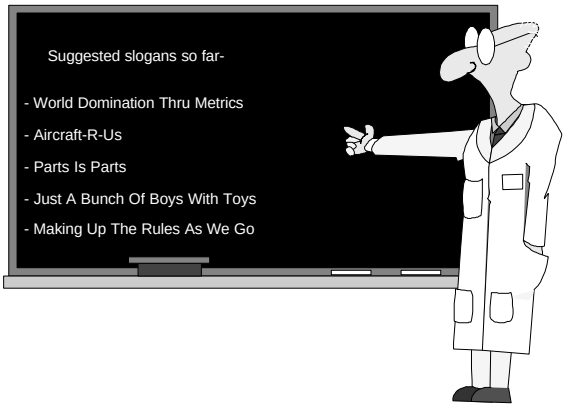
DCMC's FLIGHT OPERATIONS INTERNET NEWS LETTER, EDITION IV

Hello Everybody. No, it's not Doctor Nick Riviera. It's the fourth edition of the Safety Clause, a newsletter we here at AQOI publish, not because we have to but because we care about YOU, the APT guys. We like to think of you all as the epoxy rosin keeping the carbon fibers of safety together forming a high strength (but low weight) composite protecting the DoD's very valuable assets. This newsletter then, would be the…well you know this analogy isn't really working out for us here, but we're sure you know what we're trying to say. Something like, "Shut up and read the Clause!"

As a reminder we supplicate your inputs. E-mail your article to john_heib@hq.dla.mil or milton_dillard@hq.dla.mil. Now fasten you seat belts, return your trays to the upright and locked position and extinguish all smoking materials. You are about to launch into a new level of safety consciousness.

FYI

Flight Ops Patch. In the last issue we solicited (if we can use that word here) ideas from the field (that would be you) for a new patch which would replace the flight ops chicken patch. Well, the response has been underwhelming. The Eastern District sent us one that we think, and we're just guessing here, they scribbled on the back of a Taco Bell napkin and faxed to us. However, they were the only guys who sent anything to us whatsoever, and while the jury isn't quite out yet, the selection committee is understandably leaning towards their design. So, unless the rest of you can live with a patch that carries the motto, "Boston, Boston Über Alles," we suggest you get out your kid's crayons and get to work. If you're not artistically inclined you can limit your input to possible mottoes or slogans for the patch. All inputs must arrive on my (Lt Col Heib's) desk by the 15th of October. We're trying to finalize a design quickly so that we can possibly have the design incorporated into a flight ops coin, and have them made in time for the conference.



The artistic efforts formerly known as Risk Assessments. The latest version of the flight operations Performance Based Assessment Model is now available for downloading on our web page. This is the process that DCMC APTs will use when conducting contractor surveys, annual or otherwise, from now on. Enjoy.

Mishap Addresses. An alarming trend is appearing in mishap notification messages submitted recently. The addresses are incorrect. Many of you may have missed it but we are now going by the office symbol of AQOI vs. AQCOI which we stopped using about TWO YEARS ago. The District flight

ops offices aren't helping things either since they like to change their office symbols every other week or so. Also, as you will no doubt remember, the Southern District surrendered to the Eastern District at Appomattox Courthouse on June 30, 1997, ending the Civil War and any need to reference DCMDE-OA in any future mishap notifications. For now at least, use the following addresses-

RUEADLA/DLA FT BELVOIR VA//AQOI//
RUEDFPA/DCMDE/BOSTON MA//OA//
RUWCAAA/DCMDW LOS ANGELES CA//OF//
RUQAXQW/DCMDI FORT BELVOIR VA//DCMDI-O//

GFR Course. The latest and greatest info on future GFR courses is,

98-1	Boeing Wichita	21 - 31 Oct
98-2	Boeing Long Beach	24 Feb - 6 Mar
98-3	Boeing Long Beach	5 - 15 May
98-4	Boeing Long Beach	18 - 28 Aug
99-1	Boeing Long Beach	20 - 30 Oct

The Boeing Long Beach course site is only semi-permanent. While the Best Western Golden Sails facilities are marvelous, the primary reason we decided to use only one site for the course is to eliminate the need to mail the training materials between course offerings. Last year the cost of mailing the dozen or so boxes caused some disharmony amongst one of our CAOs, and we wouldn't want that to happen again.

APT Training Conference. Yes, we have no bananas, but we will be having a conference this year. It will be held in San Antonio, TX, the 2nd through the 5th of December. For those of you hoping for Orlando, we're sorry, but it's slated to be destroyed by an asteroid sometime around Thanksgiving. The latest rumor from LCDR Mark Feallock is the conference will be held at the San Antonio Airport Hilton. CFOs will be receiving a schedule of events as soon as we finalize the agenda.

Speaking of LCDR Feallock, congratulations are in order. He was recently picked up for Commander. Which, he should put on before the conference. If you happen to see him at the Hilton's bar, it would probably be an excellent time to hit him up for a celebratory drink.

WEB sites. In the second edition of the Safety Clause we included several web sites that we recommend looking into. One of those sites, www.faa.gov, now also contains FAA Circulars. Check it out.

AMM NEWS

That's right. It's time again for another AMM news update. There's not a whole lot of new news items to talk about that weren't already mentioned above, but I do want to update you on the AMM Course schedule and say a few words on an ongoing hot topic in the AMM world, FOD. Yes, like a bad cold, it just will not go away and if left untreated will only get worse. But first,

AMM Course Update. Our next AMM course offering will be held at DCMC Boeing St. Louis, 20 - 25 Oct. We will take our show on the road again in 98, our new location will be DCMC Boeing Long Beach. The dates are as follows, 13 - 17 Apr and 19 - 23 Oct, both in 98.

For anyone who would like to attend our course, contact your District AMM, CMSgt Penman for District West, (310) 335-3673, DSN 972-3673; Mike Lathrop for District East, (617) 753-4078, DSN 955-4078; and SMSgt Mark Baumbusch for District

International, (703) 767-2494, DSN 427-2494.

FOD

A good FOD program should emphasize training, involvement, and teamwork. A good FOD program must also have management support, from top to bottom. If the employees know that management considers FOD a high priority issue at their facility, they will follow the lead.

Timely reporting of FOD incidents/lost tools is also important. When incidents are reported, problems and trends can be identified and action taken to stop or control the trends. Supervisors must ensure reporting lost tools can be done without fear of retribution. Employees need only worry when they lose a tool and do not report it because you can never really loose a tool, the tool will eventually show up. The question is, will it be at a crash site?

The FOD program should always include tool and hardware control processes that emphasizes "clean as you go" and clean and orderly toolboxes and workspaces. This helps remind employees that they are aerospace technicians not auto mechanics.

Sometimes as AMMs we tend to focus on the usual or obvious FOD areas and may overlook some of the less visible but still problem areas. On the flight line and parking ramp areas, ground support equipment and vehicles can transport FOD in and out of areas that are swept on a regular basis. The sweepers themselves can sometimes be the culprit. Worn rotating brushes, and improper settings can render the sweeper ineffective and in some cases add to the FOD problem. You're not going to pickup much FOD when the sweeper is set on "leaves." This has happened in cases where the operators were not properly trained. The condition of the sweeper can make a big difference in our war on FOD. They must be cleaned daily and the tires checked for FOD. Take a look and see where these vehicles are being parked, are they parked on gravel or on a hard surface?

The bottom line is that we need to change attitudes and become more proactive in our FOD prevention efforts. Once we drop back into a reactive mode, we start losing the war against FOD.

v/r MSgt Milton Dillard, milton_dillard @hq.dla.mil

Thoughts from the Trenches

In case you haven't heard or read my name yet, I'll still introduce myself. I'm LCDR Mark Feallock, aka "FLEA", and among other things, I'm the new GFR course administrator. So far, in my short time at DCMC I've completed the GFR course at Sikorsky, made a "grip and grin" trip through Texas seeing the Bell and Lockheed facilities in DFW, then to Long Beach and El Segundo to meet the DCMDW folks, and was part of the instructor development group at DCPSO in Columbus, Ohio last week. Many thanks to Major Terry Reeves, USA, for allowing me to observe, while he conducted a superb semi-annual assessment at PAX River; every time I go somewhere, it's a tremendous learning opportunity.

Which brings me to my point. I'm really impressed with the level of professionalism that the DCMC Flight Ops organization has working for it (this includes Pete Quintal down at St. Augustine for providing one of the better jokes I've heard in awhile). One

of the hardest parts of my job will be to fill some big shoes being left by CDR Kevin Holland, and I sincerely appreciate having the opportunity to learn the 'ropes' from him. One of the points that Kevin made in Ohio as we wrapped up our session was that, "We are now them"…meaning that we're all in this DLA/DCMC process together, and we all as a group have the power to make this organization better. If you feel that certain things being passed down from Headquarters seem to appear from a vacuum, or that one group is particularly different from another (i.e., East vs. West), that's simply not the case. We are always open to comments and suggestion of how to better relay information, and as the "new" guy, I want to make that one of my highest priorities.

Please don't read this thinking that I think I'm a 'new sheriff' in town. Quite the opposite. I want to be the conduit if necessary to make sure any questions get answered, and we're all singing on the same sheet of music. Between e-mail and "DSN Ma Bell," I'm sure we can get you an answer. Speaking of which…did anyone happen to mention that we're having an "APT Training Conference" in San Antonio this year? Well we are, and there will be more information on the conference to follow. Let's see if we can get this back to an annual event. At any rate, I'm glad to be here (something about being outside the Beltway helps). Guess I have see how the first winter turns out. --FLEA

F-18 Final

The first edition of the Safety Clause included an article on the peculiarities of leased aircraft. This article was written to help GFRs avoid some of the problems that arose following a leased F/A-18C mishap that occurred in June of 1996. The NTSB investigated that mishap and have (finally) published the results of that investigation on their web page (www.ntsb.gov). The following was taken from that page with italics added for emphasis,

Accident occurred JUN-19-96 at
BETHALTO, IL
Aircraft: McDonnell Douglas F/A-18C,
registration: *N16518*
Injuries: 1 Fatal.

A McDonnell Douglas Aerospace (MDA) pilot was flying a leased Navy F/A-18C and conducting an airshow practice at St. Louis Regional Airport when the airplane impacted the ground at the bottom of a reverse one-half Cuban eight aerobatic maneuver. The briefed altitude at the top of the maneuver was to be 3,500 feet above ground level (AGL), which gave the pilot a base line of 1,000 feet AGL. Recorded data showed that the actual altitude at the top of the maneuver was 2,280 feet AGL. Using a group of F/A-18 pilots in a F/A-18 simulator, the lowest altitude at the top of the reverse one-half Cuban eight required to successfully complete the maneuver was 2,500 feet AGL.

The pilot had been trained as a Naval Aviator, and was a graduate of the Navy's test pilot school. He joined MDA Flight Operations 3/4/96. *The pilot had accrued 16 hours in the F/A-18 in the last year, of which 11 hours were in the last 90 days.*

MDA did not have a formal training plan for their pilots who perform airshow demonstration flights. The pilot had flown 5 civilian airshows within the last year; the most recent was 11 days prior to the accident. All the airshows were flown in a Pitts Special.

Probable Cause- the pilot's failure to follow the preflight crew briefing and attain a proper altitude during an aerobatic maneuver. Factors in the accident were: the pilot's previous experience of flying similar airshow routines in a different airplane with substantially different performance characteristics, and the company's failure to have a formal training plan for pilots performing airshow demonstration flights.

Flight Operations Metrics

If you're not part of DCMC flight ops skip to the next section. This section concerns DCMC metrics, and as you are no doubt falling asleep by this point already, I recommend moving on to the next article before you nod off and hit your head on your computer screen.

Excess Sorties are defined as, and I'm quoting myself here, "those sorties needed to reaccomplish acceptance flights due to an earlier failure of one or more aircraft component(s) that had contractually mandated performance (e.g., installation, modification, maintenance, or pre-flight inspection), and that contract performance required acceptance by Government Quality Assurance. Those additional sorties required due to operational or weather restrictions, or failure of a component that's performance is outside the scope of the contract, are not considered excess for reporting purposes." In English, Excess Sorties come from extra sorties you *would not have flown* if the contractor had done correctly what they were supposed to do the first time.

Here are some answers to some frequently asked questions concerning Excess Sorties.

QUESTION: *During a PDM/SDLM acceptance flight the transponder broke requiring an additional flight. The transponder is GFE (Government furnished equipment) and isn't normally worked on by the contractor during the PDM/SDLM process. Do I report the additional flight flown as an Extra Sortie?*

ANSWER: *No. Since the contractor wouldn't look at the transponder during the PDM/SDLM, its failure is beyond their control. The purpose of tracking Excess Sorties is to identify process failures that lead to extra sorties and therefore extra program costs. Where no process failure occurs there is no benefit from tracking the sorties.*

QUESTION: *Once the aircraft rolls off the production line the contractor flies their functional check flights (FCFs). When they finish, we conduct acceptance check flights (ACFs). Including the hours flown during all these flights, the aircraft must fly 10 hours total time prior to being picked up by the gaining unit. Would we report all extra sorties beyond the initial ACF or just those that take us beyond the required 10 hour time frame.*

ANSWER: *Just the ones beyond the 10 hour limit because there are no extra program costs associated with the earlier sorties.*

QUESTION: *How does this metric apply to experimental test sorties?*

ANSWER: *It doesn't.*

QUESTION: *How does this metric apply to contractor performed FCF sorties?*

ANSWER: *It doesn't.*

QUESTION: *What exactly is the performance goal here?*

ANSWER: *To reduce the number of excess sorties from the FY 97 average. The ultimate goal is to identify those process failures that led to excess sorties and fix them. We've asked the District CFOs to begin gathering baseline data which we'll use to spot trends for the coming year.*

QUESTION: *What does Operational Risk Management (ORM) have to do with all this?*

ANSWER: *Work with me here. ORM looks at processes. What's wrong with them? How can I optimize them to accomplish the mission more effectively? Remember, the ultimate goal of this metric is to identify process failures so that they can be addressed and corrected.*

QUESTION: *Does having this metric mean we'll look bad when we fly more sorties?*

ANSWER: *No. DCMC flight personnel determine which sorties are considered excess during post mission debriefs, i.e., "We're going to have to fly this one again because the whatchamacallit the contractor installed broke," but, DCMC aircrews don't control the processes that led to the need for an extra sortie. We control the data, not the processes. Aircrews should never base their decision to fly on the excess sortie count.*

QUESTION: *If my wife sends me to the quickie mart for milk and eggs, and I come back without the eggs would the second trip out be considered an excess sortie?*

ANSWER: *Yes, unless the reason you didn't get the eggs was that the quickie mart was out of them which would be equivalent to a weather driven extra sortie. By the way, why are you flying Government aircraft to run errands for your wife?*

Finally, remember the basic wonderfulness of our new performance goal; 1) our guys don't control the processes that can reduce the number of excess ACF/FCF sorties we fly; 2) our guys are in the best position to determine which sorties are excess (i.e., we control the data); 3) excess sorties are costly, any one sortie we can eliminate will save the Government big bucks; and 4) the only way to reduce the Excess Sortie rate is for contractors to improve their processes. Any attempt to reduce the rate by aircrew involvement (i.e.; not flying a sortie they would normally fly) would be futile, as it would result in only a temporary reduction. The process that broke down and created the need for another acceptance mission would still be broken.

ORM

Operational Risk Management. You've undoubtedly heard the term, but what does it really mean? In the coming months and years DCMC flight ops will be emphasizing ORM more and more. One of the great characteristics of ORM is its flexibility. There are countless applications and infinite methods for employing ORM. One of the best ways to learn the ORM process is to see an example application. That's what we've tried to do here with the following article in which our intrepid hero takes ORM to task. There's a big problem out there and it needs a big solution.

I sat down at my desk already wishing I had never gotten up this morning. Mickey's little hand hadn't even reached eight and it was already shaping up to be one of those all-to-typical days. You know the type. Leaving the house I noticed the neighbor's dog had toppled the trash can once again, dragging yesterday's news along with the empty boxes of Chinese takeout from last night's hastily procured dinner over half the neighborhood. It had started raining hard last night and it wasn't going to let up until I, and everyone else trying desperately to get to work today was thoroughly soaked. Describing this morning's traffic as brutal would be like describing root canal as annoying. I was going to be late. I hated being late. Finding the parking lot full, I was forced to leave what barely passes for a car of mine somewhere in the next county.

Nursing a monstrous headache that hammered at my brain like an ancient curse, punishment from some misdeed committed during a former life, I frantically searched my desk for some aspirin. Finding two left in a bottle that expired when Reagan was still in office, I washed them down with yesterday's coke. But aspirin wasn't all I needed. If I was going to make it through this particular morning I was going to have to address a deeper more primal need. I needed my morning coffee and I needed it right away.

With my head still pounding away, obviously ignoring the stale aspirin I'd fed it, I was finding it difficult to focus past my blood shot eyes. The fifty-seven unopened e-mails staring back at me probably announcing the new cafeteria hours weren't helping my concentration one bit. I had to THINK! How would I locate the coffee I so desperately needed? I guess I could have gotten drive through, but as much as I needed the extra cash, what I needed more was coffee inside me and not in my lap. It was like a puzzle with a few missing pieces, which, perhaps a little too coincidentally was exactly how I felt. Yet, as a semi-professional safety guy I knew there had to be a way that was both safe and effective. Then it hit me like a metric ton of freeze dried coffee briquettes, I could use Operational Risk Management or ORM.

I knew ORM is a decision making tool used by people at all levels to increase operational effectiveness by anticipating hazards and reducing the potential for loss, thereby increasing the probability of a successful mission, in this case getting a cup of Joe. It increases our ability to make informed decisions by providing the best baseline of knowledge and experience available. Further, it minimizes risks to acceptable levels, commensurate with procuring that much needed caffeine fix. The amount of risk we will take in war is much greater than that we should be willing to take in peace, but the process is the same and so unfortunately is the coffee. Applying the Operational Risk Management process will reduce mishaps, lower costs, provide for more efficient use of resources, and greatly

increase my chances of getting through another day.

There's more than one way to skin a cat or in this case, grind an ounce of coffee beans. Being a member of a Joint agency I could pick any Service's ORM process. They were all virtually identical. But I wasn't in the mood for Air Force French Vanilla or Army MRE café mocha au lait. This morning required Marine Corps coffee. Black as hell, strong as death, sweet as love. So, I decided to follow the precepts of ORM described in OPNAVINST 3500.39 also known as MCO 3500.27, which I found one day to be conveniently available for downloading from the USMC safety web site, www.hqmc.usmc.mil/safety/.

Step one was to Identify Hazards. Begin with an outline or chart of the major steps in the operation (operational analysis). Next, conduct a Preliminary Hazard Analysis by listing all of the hazards associated with each step in the operational analysis along with possible causes for those hazards.

There were many hazards out there in the cold cruel coffee club of life. I quickly identified five; one- discovering the coffee club was out of coffee; two- running into our secretary; three- having to take the last cup; four- inadvertently pouring a cup of decaf; and finally, five- drinking Colombian coffee made with Washington DC water. That last one could cause abnormal mutations in my DNA, transforming me into some crazed bureaucratic monster bent on rewriting the flight ops metrics. Fortunately, I could easily dismiss that particular possibility since I was, after all, rewriting Raymond Chandler not Steven King. But, I've gotten ahead of myself, Assessing the Risk is step two in the ORM process.

Assessing the Risk meant for each hazard identified, determining the associated degree of risk in terms of probability and severity. Many ways exist to properly assess risk. One common approach is to use a risk matrix diagramming the severity of the risk verses the probability of occurrence. For this I would use a 4X4 matrix. The four levels of severity would be,

I. Catastrophic - The hazard may cause death, loss of facility/asset or result in grave damage to national interests or the worldwide supply of coffee.
II. Critical - The hazard may cause severe injury, illness, property damage, damage to national or service interests or degradation to the future of the coffee club.
III. Moderate - The hazard may cause minor injury, illness, property damage, damage to national, service or command interests or degradation to coffee effectiveness.
IV. Negligible - The hazard presents a minimal threat to personnel safety or health, property, national, service or command interests or efficient use of assets/coffee.

I would plot these against the four levels of probability,

A. Frequent - Likely to occur immediately or within a short period of time. Expected to occur frequently to an individual cup of coffee or person or continuously to an air wing, fleet, air cavalry unit or coffee club.
B. Likely - Probably will occur in time. Expected to occur several times to an individual serving of coffee or person or frequently to an air wing, fleet, air cavalry unit or coffee club.
C. Occasional - May occur in time. Can reasonably be expected to occur some time to an individual coffee mug or person or several times to an air wing, fleet, air cavalry unit or coffee club.
D. Unlikely - Improbable chance of occurring.

The matrix with its associated risk codes looks like this,

PROBABILITY

			Frequent	Likely	Occasional	Unlikely
			A	B	C	D
SEVERITY	**Catastrophic**	I	1	1	2	3
	Critical	II	1	2	2	3
	Moderate	III	2	3	3	4
	Negligible	IV	3	4	4	4

The four codes (conveniently numbered 1,2,3, & 4) translate to something like this,

1. Extremely High Risk - Loss of ability to accomplish mission or no coffee today.
2. High Risk - Significantly degrades mission capabilities in terms of required mission standards and coffee palatability.
3. Medium Risk - Degrades mission capabilities and caffeine high.
4. Low Risk - Little or no impact on mission accomplishment and procurement of coffee asset.

Taking the four risks leftover after discounting the mutant DNA scenario I began a few simple mental calculations. Risk one was "discovering the coffee club was out of coffee." I knew this to be unlikely. There had been no suicides so far that morning and I noticed no crowd of coffee drinkers burning CDR "Diamond" Jim, the local coffee club baron, in effigy or otherwise outside the building. Then I began to remember something dark and ominous from my past. Christmas 1963, I was eight years old and I wanted a Johnny-7 action rifle for Christmas…no, not that far back. It was from this morning! I remembered seeing a newspaper ad when I was cleaning up after the neighbor's dog. Piggly Wiggly was having a *sale* on coffee. There was obviously plenty of coffee out there…somewhere. No worldwide shortage translated to Critical severity and therefore a risk code of 3. Things could be worse, but this was still not good and might require drastic action if Lady Luck dealt me this grim card.

The next risk, "running into our secretary" was a more complex issue. Mrs. Brown, oh sure, she had a lovely daughter, but there was a darker, more sinister side to her makeup, and I'm not talking Max Factor here. Occasionally, she would greet you with a simple hello, but all to frequently, she would start off immediately with the third degree. "I need copies of your last travel voucher." "Did you meet the latest suspense?" Then there was the dreaded, "You have a staff meeting today at 9." Because of the severe illness these statements would inflict upon me, I would again have to go with a Critical severity rating. Frequent times Critical spelled risk code One. It doesn't get any worse than that.

After I quickly assigned "having to take the last cup" a code 3 (Likely X Moderate) and "inadvertently pouring a cup of decaf" a code 4 (Unlikely X Moderate), I was ready for the next step in the ORM process and one step closer to a cup of pure black magic.

Step three was Make Risk Decision, an elementary process of deductive reasoning even for a hard bitten safety guy like myself. This first meant developing risk control options. I would start with the most serious risk first and select controls that will reduce the risk to a minimum consistent with mission accomplishment. With selected controls in place, I would have to decide if the benefit of the operation outweighed the risk. If the risks outweighed the benefits…well, that was an option more difficult to swallow than my wife's candied

yams. I might need assistance to implement the proper controls, or I'd be forced to communicate with a higher authority in the chain of command. I knew the General wouldn't want to hear about problems in coffee procurement so early in his tenure as the new Commander of DCMC, but sometimes you can't avoid the gritty underside of contract management. As they say, C'est la vie, que será será, and déja vu. Did I already say that? Never mind. I knew one thing for sure, my need for coffee was getting worse. I had better proceed with this next step if I was ever going to get some of that rich dark liquid heaven.

If I was doing this the Air Force way this would be called Analyzing the Risk Control Measures, an additional step in ORM. The Marines combined this process with step three. Feeling my desire for coffee starting to tear at my psyche like a rabid pit bull I pressed on with my leatherneck analysis. How would I mitigate the Extremely High "Mrs. Brown" risk factor. Possibilities rained through my consciousness like some sort of torrential storm. Remembering that brainstorming was a recommended method of developing risk alternatives I had a hunch I was proceeding down the correct albeit dark and foreboding alley. Then it hit me like a PVC pipe. I could backtrack through the Product Assessment Team's office, zip down the hallway and take the shortcut next to the XO's office thus avoiding the secretary's desk altogether. She'd find Jimmy Hoffa before she would ever track me down.

With my primary Extremely High Risk factor safely mollified, I moved on to the two High Risk factors, coffee club out of coffee (which, as you will no doubt remember didn't appear to be a factor this particular morning) and having to take the last cup (which came with its own set of problems).

School was out on "no coffee in the coffee club." I called Diamond Jim and found out that he had just bought fresh supplies yesterday, plus in this case, there was an emergency backup available- cafeteria coffee. I believe their latest flavor of the month was Rain Forest Nut Battery Acid. Now *that* would be a bitter pill to swallow.

Then there was the "having to take the last cup" risk factor. There were two potential problems with this. First, there's no way of telling how long that cup has been sitting in the pot. You try one of those "been brewin' since Truman" cups and it could lead to a change in religious affiliation epiphany. However, even if I rolled snake-eyes on this one I would still achieve my primary goal of getting a cup of coffee, and there's always Tums. The worse case scenario here was that I'd be forced to make another pot. Forced with the image forever burned into my psyche of the last unfortunate drone who failed to make another pot. A coffee club mob can be an ugly thing. I'll never forget the sage advice of my soon to be ex coworker, CDR Kevin of Arabia, "Never get involved in a land war in Asia, and if you take the last cup *always* make a fresh pot."

I had calculated the last risk factor "decaf" as low risk. In fact, this wasn't really a risk at all. No one drank decaf around here, and unless we were the unwitting subjects of one of those commercials where, "We're secretly switching the DoD's coffee with decaf," (this was extremely unlikely since it is a well know fact that the DoD has access to nuclear weapons) I could safely assume the coffee pot to be mercifully enriched with caffeine. I was now ready for step four.

Implement Controls. These are measures that can be used to eliminate hazards or reduce the degree of risk. Engineering Controls use engineering methods to reduce risks by design, material selection, or substitution when technically or economically feasible. Adding a sensor to the coffee machine that would detect when someone attempted to make decaffeinated coffee and dowse the offending brewer with colored dye to mark them for life would be an example of an engineering control.

Administrative Controls reduce risks through specific administrative actions, such as: providing suitable warnings, markings, placards, signs, and notices; establishing written policies, programs, instructions and

standard operating procedures (SOPs); training personnel to recognize hazards and take appropriate precautionary measures; and limiting the exposure to a hazard (either by reducing the number of personnel/assets or the length of time they are exposed). The administrative control used by our coffee club is a sign that reads, "Abandon all Hope Ye who fails to make a fresh pot upon taking the last cup."

The last control option is the use of Personal Protective Equipment that serve as barriers between personnel and a hazard. This control should be used when other controls do not reduce the hazard to an acceptable level. For example, my coffee mug has been quality engineered to be spill resistant with all the precision of finest Pittsburgh craftsmanship.

Finally ready, I used the Risk Decisions I formulated in step three and taking advantage of the Controls from step four, I got myself a cup of coffee. I had been having second thoughts on "black as death" coffee and instead opted for "dark as feeling a little run down," and went with cream, no sugar. As the caffeine surged through my veins, I noticed the gray skies that haunted me this morning were gradually beginning to clear. Thanks to ORM this day may turn out O.K. after all. Still, something crawling its way up from the blackened pit of my unconscious memory was beginning to form an unpleasant shadow in my waking thoughts. I had forgotten the final step in the ORM process, Supervise. That is, conduct follow-up evaluations of the controls to ensure they remain in place and have the desired effect. Monitor for changes which may require further Operational Risk Management. Take corrective action when necessary.

But what was left to evaluate? I had successfully avoided Mrs. Brown and the possibility of decaffeinated coffee. I didn't even have to make a new pot. The mission was a success. Or was it? Then it hit me like metaphor for a cement truck. I had drunk a great deal of coffee. I was going to have to go to the bathroom, and I was going to have to go right away. Fortunately, ORM isn't just for getting coffee. You can use it in operational applications as well.

The
End